Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Review of Part 87 of the Commission's Rules	)	
Concerning the Aviation Radio Service	)	
	)	WT Docket 01-289
	)	
To: The Commission	)	

REPLY COMMENTS OF ROCKWELL COLLINS, INC.

Pursuant to Section 1.415 of the Federal Communications Commission's ("Commission's" or "FCC's") rules, Rockwell Collins, Inc. ("Rockwell Collins") hereby files electronic reply comments in the above referenced proceeding.[1]

Rockwell Collins manufactures a complete line of civilian and military aeronautical radio communications, navigation, and surveillance equipment, including Instrument Landing System (ILS) receivers, L-Band Distance Measuring Equipment (DME), Traffic Alert and Collision Avoidance units, Air Traffic Control Radar Transponders, L-Band aeronautical mobile satellite communications equipment, C-Band Radio Altimeters, Microwave Landing System (MLS) receivers and weather radars. Therefore, Rockwell Collins is a party in interest to this proceeding.

[1] *Report and Order and Further Notice of Proposed Rulemaking*, Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, WT Docket No. 01-289 (Rel. Oct. 16, 2003) 69 Fed. Reg. 19140 (April 12, 2004)(*FNPRM or Further Notice*).

DISCUSSION

In the Further Notice of Proposed Rulemaking ("FNRPM" or "Further Notice"), the Commission requested comments on Rockwell Collins' proposal to eliminate certain technical requirements in Part 87 of the Commission's rules. Rockwell Collins submitted this proposal as part of comments filed in response to the initial Notice of Proposed Rulemaking ("NPRM").[2] Both the Boeing Company ("Boeing") and Aeronautical Radio, Inc. ("ARINC") filed comments addressing aspects of Rockwell Collins' proposal as included in the FNPRM.

Rockwell Collins requested that the Commission consider the possibility of eliminating requirements that are specific to data rates and modulation types (other than providing this information to the FCC for informational purposes), and to establish bandwidth limitations that would accommodate future services, while preventing interference to systems of other users within the Aeronautical Mobile Satellite (Route) Services [AMS(R)S] band.[3] Relaxing the technical requirements would facilitate the ability of industry to deploy new higher speed data services.

The Commission sought comment on Rockwell Collins proposal in the Further Notice.[4] Specifically, the Commission asked for comment on the impact of liberalizing technical requirements on the interference environment in the Aviation Radio Service, including what portion of the band should be considered and the impact on adjacent services.[5] The Commission

[2] See In the Matter of the Commission's Rules Concerning the Aviation Radio Service, WT Docket No. 01-289, *Notice of Proposed Rulemaking*, 66 Fed. Reg. 64785 (December 14, 2001) ("NPRM") and Comments Filed by Rockwell Collins, Inc.
[3] See Rockwell Collins, Inc. Comments Filed to *NPRM* at p.10.
[4] See *FNPRM* at para. 78.
[5] *Id.*

also sought comment on an alternative proposal made by Boeing to permit CDMA emissions in the VHF AMS(R)S band.[6]

Rockwell Collins would like to clarify that the original proposal was intended to relate only to requirements specific to aircraft earth stations operating in the 1626.5 to 1660.5 MHz band (UHF band).[7] While changes may, in fact, be appropriate in order to accommodate other satellite systems in other frequency bands, this was beyond the scope of the original proposal. While the Commission sought comment on the impact to adjacent band services, Rockwell Collins did not propose to liberalize requirements related to spurious emissions and believes that such requirements are likely to continue to remain necessary to coordinate protection of dissimilar services using different parts of the same AMS(R)S "band".

Current regulations for Aircraft Earth Stations were derived from Inmarsat technical requirements developed to address specific modulation types. As modulation types are evolving, these technical specifications are now outdated and actually could inhibit deployment of new technologies.[8] Rather than modify the Commission's rules every time a new modulation scheme emerges, we believe that requirements can be sufficiently managed by the technical parameters of the satellite system operators (e.g. Inmarsat). Non-conformance of equipment to these parameters would not result in interference to other services operating in other portions of the band.

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[6] *Id.*

[7] See July 18, 2002 Ex Parte filing: "Rockwell Collins and Inmarsat support the elimination of technical requirements specific to data rates, modulation types, and bandwidth limitations in aviation frequencies not shared with other services.

[8] See Attachment for details on specific rule parts.

In comments filed in response to the Further Notice, Boeing supports liberalization of technical requirements by recommending that the Commission amend its rules to make them "technology neutral" and to permit new signal modulation and emission structures in all Mobile Satellite Spectrum used for AMS(R)S.[9] Boeing's reply comments support liberalization beyond Boeing's original proposal which suggested broadening the rules to accommodate CDMA transmissions. [10]

ARINC seeks to clarify what portions of the AMS(R)S should be considered for satellite communications for aviation in comments filed in response to the Further Notice.[11] ARINC assumes that the Commission's reference to the VHF portion was made incorrectly and instead should have been to the UHF and SHF allocations for AMS(R)S. ARINC notes that the VHF allocation is too congested for such use.[12]

As clarified, Rockwell Collins' proposal appears to be fully consistent with Boeing's comments to relax the rules in order to accommodate new signal modulation and emission structures on a technology neutral basis. Rockwell Collins also concurs with ARINC that the VHF portion of the band is heavily congested. As noted above, Rockwell Collins' proposal was intended to address the UHF portion of the band.

[9] See Boeing comments to *Further Notice* at p.9
[10] *Id.*
[11] See ARINC comments to *Further Notice* at p.1
[12] *Id.*

Conclusion

Rockwell Collins supports the Commission's desire to reflect technological advances affecting the aviation radio service. By eliminating these technical regulatory requirements, the Commission can fulfill its desire to accommodate the rapid advances in digital communications technology. Rockwell Collins looks forward to working with the Commission on these important issues. Please direct any questions to Lisa Gaisford at 703-516-8213.

Respectfully Submitted,

ROCKWELL COLLINS, INC.

By: /s/ Electronically Filed

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ATTACHMENT

The current regulations that limit introduction of different modulation types and data rates are:

87.131 Power and Emissions
Rockwell Collins recommends that the Authorized Emissions table entry for Aircraft Earth Stations (UHF) should be treated in a manner to similar to 80.209 which states in note 4 that "Types of emission are determined by the Inmarsat Organization".

87.133 Frequency Stability
Rockwell Collins recommends a similar approach to the frequency stability for Aircraft Earth Stations. As higher bandwidth services are defined, the frequency tolerance can typically be relaxed in proportion to the increase in the bandwidth of the emission. The original +/- 320 Hz limit was derived from the low data rates first introduced by Inmarsat (600bps), and is overly restrictive for higher bandwidth emissions.

87.137 Types of Emission
The FCC currently specifies a "maximum" emission designator, allowing lower values of necessary and authorized bandwidth (per note 16). Rockwell Collins recommends implementing a similar approach to 80.209 which allows the satellite system operator to specify the emission type and bandwidth of the aircraft earth station.

87.141(j) Modulation Requirements
Rockwell Collins recommends deletion of paragraph 87.141(j). This requirement was derived from the original low level Inmarsat requirements. There does not appear to be any technical necessity for the FCC to specify the modulation format at such a low level of detail. Elimination will allow different modulation formats (such as 16-QAM) to be implemented in support of future high speed services without requiring a revision this section.

87.145(d) Acceptability of Transmitters for Licensing
Para (d) specifically requires aircraft earth stations to employ a method of transmitter precompensation for Doppler Effect. The same argument may be used here as for transmitter frequency stability specified in 87.133. As higher modulation bandwidths are employed, the necessity for tight control of frequency accuracy is proportionately reduced. Rockwell Collins recommends that this paragraph be deleted. If the FCC feels a general requirement for Doppler precompensation needs to be retained for some reason, Rockwell Collins recommends at a minimum, the deletion of specific accuracy requirements (i.e. 335 Hz). These limits are unique to the original low data rate Inmarsat emission type, and have been relaxed for higher data rate emissions.